

NOTES ON AUSTRALIAN ANTS OF THE GENUS *POLYRHACHIS* FR. SMITH, WITH  
A SYNONYMIC LIST OF THE SPECIES (HYMENOPTERA: FORMICIDAE:  
FORMICINAE)

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The named Australian species of the ant genus *Polyrhachis* are reviewed. Eleven subspecies are raised to species: *P. guerini lata* Emery, *P. hookeri lownei* Forel, *P. hookeri obscura* Forel, *P. aurca obtusa* Emery, *P. guerini pallescens* Mayr, *P. rastellata pilosa* Donisthorpe, *P. sexspinosa reclinata* Emery, *P. appendiculata schoopae* Forel, *P. guerini vermiculosa* Mayr, *P. lombokensis yarrabahensis* Forel and *P. rastellata yorkana* Forel. *P. australis* Mayr, formerly a junior synonym of *P. levior* Roger, is declared a valid species. Nine new synonyms are proposed (senior names cited first): *P. australis* Mayr = *P. nox* Donisthorpe, *P. creusa* Emery = *P. creusa chlorizans* Forel = *P. hecuba* Forel, *P. heinlethii* Forel = *P. heinlethii sophiae* Forel, *P. hookeri* Lowne = *P. hookeri aerea* Forel, *P. lata* Emery = *P. gab aegra* Forel, *P. pallescens* Mayr = *P. aurea depilis* Emery, *P. phryne* Forel = *P. sidnica perthensis* Crawley, *P. sexspinosa* (Latreille) = *P. barnardi* Clark. Seven Papuan species are recorded for the first time from Australia: *P. argenteosignata* Emery, *P. atropos* Fr. Smith, *P. denticulata* Karawajew, *P. mucronata* Fr. Smith, *P. obtusa* Emery, *P. reclinata* Emery and *P. semiobscura* Donisthorpe. *P. guerini* Roger, *P. levior* Roger and *P. lombokensis* Emery, which were previously reported from Australia, apparently do not occur there. *P. guerini* is known only from New Caledonia and is apparently endemic there. A current synonymic list of the 114 valid named Australian *Polyrhachis* species is provided, and the position of all names in the traditional subgeneric arrangement is indicated. □ *Formicidae, Polyrhachis, Australia, synonymy, distribution, checklist.*

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This study culminates a series to which both authors have contributed (Kohout, 1988a, 1988b, 1988c, 1989, 1990; Taylor, 1989). With these studies, we have aimed to review the identities and nomenclature of all described Australian species of the large and diverse formicine ant genus *Polyrhachis* Fr. Smith. In this paper, a number of species-group taxa are discussed in detail. They are the last remaining for consideration in this project.

During the 210 years preceding 1985, 20 authors generated a nomenclature comprising 137 available specific and subspecific names for Australian *Polyrhachis*. As well, several infrasubspecific names, which have no formal status in zoological nomenclature (Taylor, 1986), were proposed. The arrangement of species that resulted was summarised by Taylor and Brown (1985) and Taylor (1987). Because no comprehensive revision of the genus was available, these lists ranked the available names according to the their then most recent

taxonomic assignment. In Taylor's checklist (1987), for example, 86 names were ranked as species, and 33 as subspecies. At that time, only 5 names had previously been assigned to junior synonymy and 3 to junior homonymy. However, because this arrangement was assembled piecemeal and neither subjected to critical review nor revision, any impression of systematic comprehensiveness in the resulting nomenclature is illusory.

Following our studies, we are now able to recognise 114 validly named species of *Polyrhachis* from Australia, and 33 junior synonyms or homonyms. We find no justification for continued nomenclatural recognition of subspecies. In our recent papers, 20 of the subspecies listed by Taylor (1987) have been elevated to specific rank, and 13 consigned to junior synonymy. Of the latter, 5 are treated as junior synonyms of their species, 2 as junior synonyms of an elevated name that was previously treated as a subspecies of the same species, and 6 as junior synonyms of

species with which they were not previously associated.

Six of the 28 names cited below as senior synonyms were originally proposed for Papuan species. Four of these (*P. creusa* Emery, *P. dives* Fr. Smith, *P. fervens* Fr. Smith, and *P. insularis* Emery) have not been used before for Australian ants. Five names of South-east Asian or Melanesian taxa (*P. guerini* Roger, *P. ithona* Fr. Smith, *P. levior* Roger, *P. lombokensis* Emery and *P. relucens* (Latreille)), which were previously treated as senior synonyms of Australian names or were considered to be nominotypical subspecies of Australian taxa, no longer apply to the Australian fauna. Finally, the first Australian records are noted of 10 species originally described from lands to the north (*P. argenteosignata* Emery, *P. atropos* Fr. Smith, *P. consimilis* Fr. Smith, *P. denticulata* Karawajew, *P. mucronata* Fr. Smith, *P. obtusa* Emery, *P. paxilla* Fr. Smith, *P. reclinata* Emery, *P. rufofemorata* Fr. Smith and *P. semiobscura* Donisthorpe).

Some of the species listed below have not been discussed in detail in our papers. Nonetheless, the species have been studied, found to be valid, and do not require further comment at present. We envisage that few changes will be required in the nomenclature proposed below. However, there is the possibility that we may have overlooked sibling species concealed by variability that we have interpreted here as infraspecific (a problem always prominent in taxonomic work on Australian ants).

All of the species listed are represented in the Australian National Insect Collection (ANIC), Canberra, and most are in the Queensland Museum (QMBA), Brisbane. The ANIC has type material of a number of taxa, including syntypes or paralectotypes of several of the species or subspecies described by Auguste Forel. These were generously donated in 1968 by the Muséum d'Histoire Naturelle, Geneva, Switzerland. In addition the ANIC contains many specifically labelled voucher specimens identified by one of us following direct comparison with type material on loan from foreign or other Australian collections. Between us, we have seen types of every relevant available name for which types are known to exist. We also believe that any specimen bearing one of our determination labels written during or since 1987 can be considered to have been identified with confidence. We have also designated and used a few particular ANIC vouchers as nomenclatural

paradigms for species of which the types are deemed to have been lost (see *P. guerini*). As a result, we believe that Australian workers using our published notes, and the resources of either collection should have little difficulty in identifying material of named *Polyrhachis* species or in recognising specimens representing undescribed species. The undescribed species known to us will at least double the Australian species tally. The next phase of our project will attend to their description and ultimately to the provision of keys enabling the ready identification of all relevant species.

Although we do not make formal use of the *Polyrhachis* subgenera of the Emery/Wheeler classification (Wheeler, 1922; Emery, 1925), we consider that they do provide useful foci for the sorting of species. The collections in our care are arranged following this system, generally as simplified by Hung (1967). For this reason a second list of species is given below, arranged in subgeneric groups. We do not support the direct use of species-group names to replace those of the subgenera. It seems unlikely that all of these subgenera are monophyletic. As well, a number of apparently monophyletic species-groups, which do not correlate with the present subgenera, can be discerned. We expect the present subgenera to be replaced by a larger set of informally-named species-groups but, prior to an overall formal taxonomic analysis, we will not initiate such a classification. No apology is made for this apparent ambivalence; the categorical subdivision of *Polyrhachis* cannot be resolved until all of the species now known are nomenclaturally and taxonomically accessible, and have been subjected to classificatory analysis. We trust that this paper will contribute meaningfully to the achievement of such a classification.

Abbreviations for institutions (with the names of co-operating curators) are: ANIC, Australian National Insect Collection, Canberra; BMNH, British Museum (Natural History), London (Barry Bolton); BPBM, Bernice P. Bishop Museum, Honolulu, Hawai'i, U.S.A. (Dr G. Nishida); HNHM, Hungarian Natural History Museum, Budapest (Dr J. Papp); IZAS, Institute of Zoology, Academy of Sciences, Kiev, U.S.S.R. (Dr A.G. Radchenko); MCSN, Museo Civico di Storia Naturale 'Giacomo Doria', Genoa, Italy (Drs R. Poggi and V. Raineri); MCZC, Museum of Comparative Zoology, Harvard University, Cambridge, Mass., U.S.A. (Dr A.F. Newton, Jr); MHNG, Muséum d'Histoire

Naturelle, Geneva, Switzerland (Dr C. Besuchet); MVMA, Museum of Victoria, Melbourne (Dr A. Neboiss and K. Walker); NHMW, Naturhistorisches Museum, Vienna, Austria (Dr M. Fischer); NHRS, Naturhistoriska Riksmuseet, Stockholm, Sweden (Dr K-J. Hedquist); OXUM, University Museum, Oxford, U.K. (Drs G. McGavin and C. O'Toole); QMBA, Queensland Museum, Brisbane (E.C. Dahms and Dr G.B. Monleith).

#### SYNONYMIC LIST OF AUSTRALIAN POLYRHACHIS SPECIES

The following list includes all described Australian *Polyrhachis* species known to the authors. Non-Australian junior synonyms are excluded. Names of the unresolved *P. (sidnica)* complex (Taylor, 1989) - comprising *P. sidnica*, *P. cedarensis*, *P. leae*, and *P. tambourinensis* - are listed as species. For publication details see Taylor and Brown (1985) or Taylor (1987), and Emery (1925). Synonyms are in italics.

- ammon* (Fabricius, 1775)  
*ammon angustata* Forel, 1902  
*ammonoides* Roger, 1863  
*andromache* Roger, 1863  
*connectens australiae* Emery, 1887  
*angusta* Forel, 1902  
*appendiculata* Emery, 1893  
*arcuata* (Le Guillou, 1841)  
*argentina* Forel, 1902  
*argenteosignata* Emery, 1900  
*atropos* Fr.Smith, 1860  
*aurea* Mayr, 1876  
*australis* Mayr, 1870  
*nox* Donisthorpe, 1938 syn.nov.  
*bamaga* Kohout, 1990  
*barretti* Clark, 1928  
*bedoti* Forel, 1902  
*bellicosa* Fr.Smith, 1859  
*bicolor* Fr.Smith, 1858  
*catantacoidea* Stitz, 1911  
*cedarensis* Forel, 1915  
*chalchas* Forel, 1907  
*cleopatra* Forel, 1902  
*elia* Forel, 1902  
*clotho* Forel, 1902  
*constricta* Emery, 1897  
*consimilis* Fr.Smith, 1858  
*contenta* Mayr, 1876  
*crawleyi* Forel, 1916  
*creusa* Emery, 1897  
*hccuba* Forel, 1902 syn.nov.  
*cupreata* Emery, 1895  
*daemeli exlex* Forel, 1915  
*daemeli* Mayr, 1876  
*denticulata* Karawajew, 1927  
*dives* Fr.Smith, 1857  
*exulans* Clark, 1941  
*doddi* Donisthorpe, 1938  
*erato* Forel, 1902  
*aeschyle* Forel, 1915  
*eremita* Kohout, 1990  
*euterpe* Forel, 1902  
*femorata* Fr.Smith, 1858  
*emeryi* (Forel, 1880)  
*fervens* Fr.Smith, 1860  
*kershawi* Clark, 1930  
*flavibasis* Clark, 1930  
*foreli* Kohout, 1989  
*fuscipes* Mayr, 1862  
*semipolita hestia* Forel, 1911  
*gab* Forel, 1880  
*glabrinota* Clark, 1930  
*gravis* Clark, 1930  
*heinlethii* Forel, 1895  
*heinlethii sophiae* Forel, 1902 syn.nov.  
*hermione* Emery, 1895  
*hexacantha* (Erichson, 1842)  
*froggatti* Forel, 1910  
*hirsuta* Mayr, 1876  
*hirsuta quinquentata* Viehmeyer, 1925  
*hookeri* Lowne, 1865  
*hookeri aerea* Forel, 1902 syn.nov.  
*inconspicua* Emery, 1887  
*thalia* Forel, 1902  
*insularis* Emery, 1887  
*inconspicua subnitens* Emery, 1895  
*inuitata* Kohout, 1989  
*io* Forel, 1915  
*jacksoniana* Roger, 1863  
*luchesis* Forel, in Emery 1897  
*lata* Emery, 1895 stat.nov.  
*gab aegra* Forel, 1915 syn.nov.  
*latreillii* (Guérin-Ménéville, 1838)  
*leae* Forel, 1913  
*loweryi* Kohout, 1990  
*lownei* Forel, 1895 stat.nov.  
*lydiae* Forel, 1902  
*lysistrata* Santschi, 1920  
*machaon* Santschi, 1920  
*mackayi* Donisthorpe, 1938  
*macropus* Wheeler, 1916  
*longipes* Wheeler, 1915  
*maculata* Forel, 1915  
*micans* Mayr, 1876  
*mjobergi* Forel, 1915  
*anguliceps* Viehmeyer, 1925  
*mucronata* Fr.Smith, 1859  
*obscura* Forel, 1895 stat.nov.  
*obtusa* Emery, 1897 stat.nov.

ops Forel, 1907  
 ornata Mayr, 1876  
     *humerosa* Emery, 1921  
     *chrysothorax* Viehmeyer, 1925  
 pallescens Mayr, 1876 stat.nov.  
     *aurea depilis* Emery, 1897 syn.nov.  
 patiens Santschi, 1920  
 paxilla Fr.Smith, 1863  
 penelope Forel, 1895  
 phryne Forel, 1907  
     *sempronina* Forel, 1907  
     *perthensis* Crawley, 1922 syn.nov.  
 pilosa Donisthorpe, 1938 stat.nov.  
 polymnia Forel, 1902  
 prometheus Santschi, 1920  
 pseudothrinax Hung, 1967  
 punctiventris Mayr, 1876  
 pyrrhus Forel, 1910  
 queenslandica Emery, 1895  
     *delicata* Crawley, 1915  
 rastellata (Latreille, 1802)  
 reclinata Emery, 1887 stat.nov.  
 rowlandi Forel, 1910  
 rufifemur Forel, 1907  
     *terpsichore elegans* Forel, 1910  
 rufofemorata Fr.Smith, 1859  
 rustica Kohout, 1990  
 schenkli Forel, 1886  
 schoopae Forel, 1902 stat.nov.  
 sehwiendlandi Forel, 1902  
 semiaurata Mayr, 1876  
 semiobscura Donisthorpe, 1944  
 semipolita André, 1896  
 senilis Forel, 1902  
     *gab tripellis* Forel, 1915  
     *comata* Crawley, 1915  
     *crawleyella* Santschi, 1916  
 sexspinoso (Latreille, 1802)  
     *barnardi* Clark, 1928 syn.nov.  
 sidnica Mayr, 1866  
     *quadricuspis* Mayr, 1870  
 sokolova Forel, 1902  
     *sokolova degener* Forel, 1910  
 tambourinensis Forel, 1915  
 templi Forel, 1902  
 terpsichore Forel, 1893  
 thais Forel, 1910  
 thusnelda Forel, 1902  
 townsvillei Donisthorpe, 1938  
 trapezoidea Mayr, 1876  
 tubifera Forel, 1902  
 turneri Forel, 1895  
 urania Forel, 1902  
 vermiculosa Mayr, 1876 stat.nov.  
 yarrabahensis Forel, 1915 stat.nov.  
 yorkana Forel, 1915 stat.nov.  
 zimmerae Clark, 1941

## SUBGENERIC ARRANGEMENT OF THE SPECIES

The following list, which basically follows the subgeneric arrangement of the Emery/Wheeler classification, is presented with the qualifications previously mentioned.

**Polyrhachis (Campomyrma):** *cedarensis*, *creusa*, *femorata*, *flavibasis*, *fuscipes*, *gravis*, *hexacantha*, *hirsuta*, *inconspicua*, *insularis*, *io*, *jacksoniana*, *leae*, *macropus*, *maculata*, *micans*, *ops*, *patiens*, *phryne*, *polymnia*, *prometheus*, *pseudothrinax*, *pyrrhus*, *schwiedlandi*, *semipolita*, *sidnica*, *tambourinensis*, *templi*, *zimmerae*.

**P. (Chariomyrma):** *appendiculata*, *arcuata*, *argenteosignata*, *aurea*, *bedoti*, *cataulacoidea*, *constricta*, *contempta*, *gab*, *heinlethii*, *hookeri*, *lata*, *latreillii*, *lownei*, *obscura*, *obtusa*, *pallescens*, *punctiventris*, *rowlandi*, *schoopae*, *senilis*, *urania*, *vermiculosa*.

**P. (Cyrtomyrma):** *australis*, *doddi*, *mackayi*, *pilosa*, *rastellata*, *townsvillei*, *yorkana*.

**P. (Hagiomyrma):** *ammon*, *ammonoeides*, *angusta*, *chalchas*, *crawleyi*, *denticulata*, *lachesis*, *lydiae*, *paxilla*, *penelope*, *schenkii*, *semiaurata*, *semiobscura*, *sokolova*, *thusnelda*, *trapezoidea*, *tubifera*.

**P. (Hedomyrma):** *argentosa*, *atropos*, *harretti*, *cleopatra*, *clio*, *cloitho*, *consimilis*, *cupreata*, *daemeli*, *erato*, *euterpe*, *fervens*, *hermione*, *machaon*, *mjobergi*, *ornata*, *rufifemur*, *terpsichore*, *thais*, *turneri*.

**P. (Myrma):** *andromache*, *foreli*, *inusitata*, *rufofemorata*.

**P. (Myrmatopa):** *yarrabahensis*.

**P. (Myrmhopa):** *bamaga*, *bicolor*, *dives*, *eremita*, *glabrinota*, *loweryi*, *mucronata*, *reclinata*, *rustica*, *sexspinoso*.

**P. (Myrmothrinax):** *lysisstrata*, *queenslandica*.

**P. (Polyrhachis):** *bellicosa*.

## NOMENCLATORIAL NOTES ON SOME RECENT POLYRHACHIS RECORDS

Voucher specimens supplied by Dr A.N. Andersen enable the following allocation of the names he used in his ecological papers (Andersen, 1986a, 1986b, 1988). Specimens of: (1) *P. femorata* were variously identified as 'femorata', 'femorata sp A' or 'femorata sp B'; (2) *P. fuscipes* as 'hexacantha' or 'hexacantha sp A'; (3) *P. patiens* as 'micans', 'micans sp B'

or '*micans* sp C'; and (4) *P. (sidnica)* as '*hexacantha* sp B'.

Specimens identified by Imai, Crozier and Taylor (1977) using the voucher designation '*Polyrhachis* sp no 1 (ANIC)' represent an unnamed '*Campomyrma*' species, which will be described elsewhere.

## DISCUSSION OF INDIVIDUAL SPECIES

In the following, distributions are summarised using 'short' coordinates to specify 1-degree mapping grid-cells; all latitudes are for the southern hemisphere. Unless otherwise indicated, all specimens discussed are workers and all nomenclatural changes have been based on direct comparison of relevant type specimens.

### *Polyrhachis atropos* Fr.Smith, 1860

*Polyrhachis atropos* Fr.Smith, 1860:100, pl.1,fig.22.

Type locality: New Guinea, Dory (= Manokwari, Irian Jaya), (holotype examined, OXUM).

*Polyrhachis (Hedomyrma) eucharis* Karawajew, 1927:22, fig.12. Type locality: Aru, Wammar I., Dobo (= Kepulauan Aru, Indonesia) (syntype examined, IZAS), syn.nov.

*P. atropos* has not previously been recorded from Australia. Specimens from Maer (= Murray) Island (09/144) in Torres Strait (29.vii.1974, H. Heatwole and E. Cameron) and Bamaga (10/142) on Cape York Peninsula (18.24.iii.1987, R.J. Kohout (RJK)) are in the ANIC and QMBA. The species is known from the Moluccas through West Irian to Papua New Guinea and northern Cape York Peninsula, Queensland (Qld). Recent New Guinean records are from Oransbari, S of Manokwari (01/134), Aitape (03/142), Lumi (03/142), Umboi I. (05/147), Wampit nr Lac (06/146), Kokoda (08/147), Rouna (09/147) and Pongani R. (09/148). This species nests in small hollow twigs on standing low trees and shrubs.

### *Polyrhachis argenteosignata* Emery, 1900

*Polyrhachis argenteosignata* Emery, 1900:335, Type locality: New Guinea (syntype examined, MCSN).

This New Guinean species is recorded for the first time from Australia where it is known only from lowland rainforests on northern Cape York Peninsula, at Lockerbie Scrub (10/142), Bamaga

(10/142) and Iron Range (12/143). New Guinean records are from at or near the following localities: Oransbari, S of Manokwari (01/134); K̄ar K̄ar I., Kurum (04/145); and Wampit, nr Lac (06/146). *P. argenteosignata* inhabits lowland and gallery rainforests where it mostly frequents the edges, rather than deeper in the forest or in the surrounding savannah woodland.

### *Polyrhachis australis* Mayr, 1870

*Polyrhachis australis* Mayr, 1870:945. Type locality: Port Mackay, Ostaustralien (= Mackay, Qld) (type presumed lost).

*Polyrhachis levior* Roger, 1863; Mayr, 1876:71. (spurious synonymy of *australis* under *P. levior*).

*Polyrhachis (Cyrtomyrma) nox* Donisthorpe, 1938:249. Type locality: Mackay, Queensland (2 syntypes examined, BMNH) syn.nov.

The holotype of *P. australis* cannot be found in the Mayr collection and appears to have been lost. However, details given in the original description, and stated in support of the subsequent inappropriate (see below) synonymy of *australis* under *P. levior* Roger (= *laevissimus* Fr.Smith, 1859) (Mayr, 1876:71), enabled us to identify *P. australis* with reasonable confidence. In this species the pronotal humeri are angulate and the propodeum is armed with a pair of spines. The same characters were used by Donisthorpe to characterise his *P. nox*, the types of which were evidently collected at Mackay (Qld), as were those of *P. australis*. We are confident that these names apply to a single species and that *nox* is thus a junior synonym of *australis*. On the other hand, examination of the holotype of *P. levior* shows it clearly to be representative of another species. Its head is missing, but the mesosomal structure is very distinctive. The pronotal humeri are distinctly bilobed, and the propodeal spines relatively long and thick, somewhat dorsoventrally flattened and rather bluntly terminated. In contrast, the pronotal humeri of *P. australis* (as represented by the *P. nox* syntypes and other available material) are only bluntly angulate, and the propodeal spines distinctly shorter, more slender and more acute than in *levior*. We have not seen confidently identified Australian specimens of *P. levior*, and thus consider it no longer to be referable to the Australian fauna.

*P. australis* is known from just north of Mackay (20/148), south to Rundle Range (23/150). It is an arboreal species that builds its nests by

joining the leaves of various trees and shrubs with silk.

***Polyrhachis creusa* Emery, 1897**

*Polyrhachis creusa* Emery, 1897:577. Type locality: New Guinea, Ighibirei (holotype examined, MCSN).

*Polyrhachis creusa* var. *chlorizans* Forel, 1901:30. Type locality: Bismarck Archipelago, Ralum (04/152) (Papua New Guinea (PNG), East New Britain Prov.) (4 syntypes examined, MHNG). syn.nov.

*Polyrhachis hecuba* Forel, 1902:527. Type locality: Qld, Mackay (21/149) (2 syntypes examined, ANIC). syn.nov.

The *creusa* holotype has somewhat less clearly expressed gastral shagreening than the *chlorizans* syntypes. This difference is slight, however, and does not justify separate specific status.

When describing *P. creusa* Emery noted its similarity to the then unpublished *P. hecuba* Forel (of which Forel had sent him specimens). Comparison of the types shows that these names are synonyms. In fact, were it not for modern material collected in both New Guinea and Australia, we would suspect that one of the type series had been mislabelled, so closely do they match. It is historically of interest to note that Forel had evidently distributed identified specimens of *P. hecuba* by 1897, five years before he formally published the name.

Modern type-compared ANIC vouchers are from Mingende (05/144), Papua New Guinea (collected in grassland at 5000ft elevation, B.B. Lowery, 13.i.1968), and Finch Hatton Gorge, Eungella Nat. Park (21/148), Qld (7-13 April 1975, RJK). The *creusa chlorizans* types were taken 'im Graslande und am Strande' (Forel, 1901). This species is widely distributed both geographically and altitudinally and, like other species discussed here that are found both in Australia and New Guinea, it was probably vicariantly isolated when the two lands were last separated.

***Polyrhachis denticulata* Karawajew, 1927**

*Polyrhachis (Hagiomyrma) denticulata* Karawajew, 1927:13. Type locality: Amboina (= Ambon), Indonesia (syntype examined IZAS).

*P. denticulata* has been reported previously

only from the Moluccas and New Guinea. The first Australian record is based on a single worker collected on Mabuiag Island (09/142), Torres Strait (1974, H. Heatwole and E. Cameron; ANIC).

Recent Papua New Guinea records are from at or near Lac (06/147), Buna (08/148), Oro Bay (08/148), and Milne Bay (10/150).

***Polyrhachis guerini* Roger, 1863**

Although its holotype cannot be located in any relevant European collection and appears to have been lost, *P. guerini* may be recognised as the only *Polyrhachis* species known from New Caledonia, where it has been abundantly collected. In lieu of the type we recognise several ANIC voucher specimens from Mt Panié (20°34'S, 164°46'E) (*Melaleuca* scrub, 120m, 15 February 1977, P.S. Ward acc. 2218) as the nomenclatural paradigms of the name *guerini*. Designation of a neotype would not be appropriate here.

The Australian species *P. lata*, *P. pallescens* and *P. vermiculosa* were first described as subspecies of *P. guerini* (see below). We have seen no Australian specimens that are conspecific with the New Caledonian species and consider *P. guerini* to be endemic to New Caledonia. It was originally described from 'Neuholland', but this citation seems to have been an error (Emery, 1897:588-589; Emery, 1914:428).

***Polyrhachis heinlethii* Forel, 1895**

*Polyrhachis heinlethii* Forel, 1895:47. Type locality: Qld, Mackay (21/149) (6 syntypes examined, MHNG, ANIC).

*Polyrhachis heinlethii* var. *sophiae* Forel, 1902:521. Type locality: Qld, Mackay (21/149) (5 syntypes examined, MHNG, ANIC). syn.nov.

*P. heinlethii sophiae* was putatively distinguished from the nominotypical subspecies by its smaller size, the shape and length of its pronotal and propodeal spines, and its more regularly striate pronotal dorsum. These characters are now known to vary infraspecifically. Examination of numerous specimens from throughout the range of *P. heinlethii* has revealed no other taxonomically significant variation. This is a ground nesting species which inhabits open forests and woodlands. It is known from MI Ossa, NQ, south to Campbelltown, New South Wales (NSW). (Grid cells 20/148, 20/149,

25/153, 26/153, 27/152, 27/153, 28/153, 34/150).

***Polyrhachis hookeri* Lowne, 1865**

*Polyrhachis hookeri* Lowne, 1865:334. Type locality: NSW, vicinity of Sydney (as Sidney) (33/151) (types presumed lost).

*Polyrhachis hookeri* var. *aerea* Forel, 1902:521. Type locality: Qld, Mackay (21/149) (2 syntype workers, 1 alate queen examined, MHNG). syn.nov.

Lowne's type material of *P. hookeri* cannot be found in the collections of the BMNH or OXUM and must be presumed to have been lost (Bolton, pers. comm.). The original description, however, enables reasonably confident identification of this species. In lieu of a type we recognise a topotypical worker (ANIC) from Manly Reservoir, Sydney (33/151), NSW (sandstone scrub, 250ft, 19.v.1960, B.B. Lowery) as the nomenclatural paradigm of the name *hookeri*. Designation of a neotype would not be appropriate here, because the type(s) might still be extant. Comparison of syntypes of *P. hookeri aerea* with this paradigm, and with other specimens collected near Sydney, shows them to be conspecific.

*P. hookeri* is a common ground-nesting ant which inhabits open forests and woodlands. It ranges from NQ to central coastal NSW (Grid cells 19/146, 20/148, 20/149, 21/148, 21/149, 22/149, 23/149, 23/150, 25/153, 27/150, 27/152, 27/153, 28/151, 28/152, 33/151). Specimens from N and CQ tend generally to be relatively large, with more acute pronotal spines than those of other series, and with the colour of the mesosomal dorsum ranging from bright metallic green to various shades of blue and purple. Southern specimens are generally somewhat smaller, with the pronotal spines less strongly projecting and the mesosomal dorsum more uniformly green. These forms, however, intergrade, and we perceive a single, somewhat variable, species.

***Polyrhachis lata* Emery, 1895 stat.nov.**

*Polyrhachis guerini* ssp. *lata* Emery, 1895:357. Type locality: Qld, Somerset (10/142) (syntype examined, MHNG).

*Polyrhachis (Chariomyrma) gab* var. *aegra* Forel, 1915:109. Type locality: Qld, Atherton (17/145) (6 syntypes examined, MHNG) (Raised to species by Kohout, 1988:49). syn.nov.

Comparison of the *P. guerini lata* syntype with the ANIC nomenclatural paradigms of *P. guerini* (see above) and consideration of other Australian and New Caledonian material shows *P. guerini* and *P. lata* to be separate species. Comparison of the *lata* and *aegra* syntypes shows that they are conspecific. *P. lata* is known from the Torres Strait (Horn I.) and Cape York Peninsula, south to Rundle Range near Gladstone, Qld (Grid cells 10/142, 16/146, 17/145, 17/146, 19/147, 20/148, 21/148, 23/150). It is an inhabitant of open sclerophyll forests and savannah woodlands.

***Polyrhachis lownei* Forel, 1895 stat.nov.**

*Polyrhachis hookeri* r. *lownei* Forel, 1895:44. Type locality: Qld, Mackay (21/149) (10 syntype workers, 1 alate queen examined, MHNG, ANIC).

The most obvious difference between syntypes of *P. hookeri lownei* and specimens considered here to be conspecific with the ANIC nomenclatural paradigm of *P. hookeri* (see above) is the colour of the mesosomal dorsum. In *hookeri* this ranges from metallic green to blue and purple, while in *lownei* it is uniformly very dark brown, at times almost black. Also, the propodeal spines in *hookeri* are relatively short (distinctly shorter than the distance between their bases), straight and divergent, while in *lownei* they are longer (with length equal to or exceeding the distance between their bases), and are gently curved, so that the extreme apices project posteriorly. We consider these types to represent separate species. *P. lownei* appears to be uncommon, and is perhaps confined to the higher altitude sclerophyll forests of NQ, from Kuranda south to Eungella, inland from the type locality (Grid cells 16/145, 18/145, 18/146, 21/148).

***Polyrhachis mucronata* Fr.Smith, 1859**

*Polyrhachis mucronatus* Fr.Smith, 1859:140. Type locality: Indonesia, Aru (= Kepulauan Aru, 06/134) (holotype examined, OXUM).

*P. mucronata* has been reported previously only from Kepulauan Aru (Moluccas) and New Guinea. It has recently been taken at a number of localities on or adjacent to Cape York Peninsula. Examination of the holotype and of all available Australian and New Guinean specimens shows *mucronata* to be somewhat variable. However, the observed differences between specimens

seem not to be taxonomically significant. They include relatively 'soft' characteristics, such as the degree of elevation of the propodeal spines and the colour of the appendages.

In Australia *mucronata* ranges from Lockerbie Scrub, south to Hinchinbrook Island, Qld (Grid cells 10/142, 12/143, 16/145, 17/145, 17/146, 18/146). Moluccan and New Guinean records are from Vogelkop, Sururai (01/133); Biak I. (01/136); Lumi, Torricelli Mts (03/142); Naru, SW of Madang (05/145); Wampit, nr Lae (06/146); and nr Sogeri (09/147). This species builds arboreal nests by joining leaves with silk, or by constructing small, pocket-like structures of silk and assorted plant fragments against the underside of living leaves on low trees and shrubs. It inhabits lowland tropical rainforest.

***Polyrhachis obscura* Forel, 1895 stat.nov.**

*Polyrhachis hookeri* r. *obscura* Forel, 1895:44. Type locality: Qld, Mackay (21/149) (8 syntype workers. 2 alate queens examined, MHNG, ANIC).

Comparison of *P. hookeri obscura* syntypes with the ANIC nomenclatural paradigm of *P. hookeri* (see above), and consideration of other material, demonstrates that *obscura* almost certainly constitutes a species separate from *P. hookeri*. The most obvious differences involve the colour of the mesosomal dorsum, which in *hookeri* is mostly metallic green, blue or purple, but dark brown in *obscura*, with a faint but distinct coppery metallescence. Also, the gaster in *hookeri* is brownish-black, usually with a metallic green sheen, and has a dark brownish-maroon coloured median longitudinal dorsal patch. The gaster in *P. obscura* is reddish-brown (lighter and more reddish than the mesosoma), with an equivalent dorsal patch much less distinctly visible. The propodeal spines of *P. obscura* are relatively short, dorso-ventrally flattened and unusually wide at the base; each has a conspicuous, brightly reflective smooth dorsal patch near its base; the petiolar spines are relatively short compared to those of *hookeri*. *P. obscura* is apparently rare; the only specimens known to us are the types.

***Polyrhachis obtusa* Emery, 1897 stat.nov.**

*Polyrhachis aurea* var. *obtusa* Emery, 1897: 589. Original localities: New Guinea: Haveri (09/147), Kapa Kapa (09/147), Humboldt Bay (02/140) (syntype from Haveri examined, MNHG).

The syntypes of *P. aurea* (original localities: Qld, Rockhampton (23/150) and Gayndah (25/151), workers, NHMW, MHNG) and *P. aurea obtusa* clearly represent separate species. The pronotal humeri of *aurea* are distinctly spinose, while those of *obtusa* are at most obtusely angulate or subdentate. The head in *aurea* is relatively narrow, and the Scape Index (SI = Scape Length x 100/Head Width, measured immediately in front of the eyes) relatively high (>125). SI in *P. obtusa* is <117. Available specimens of *P. obtusa* are generally smaller than those of *P. aurea*; Head Length (HL) of the *obtusa* syntype is 1.65 mm; other New Guinean worker specimens are consistently smaller; the smallest examples we have seen are from the Torres Strait Islands, where HL ranges from 1.37 to 1.53 mm. HL in available *P. aurea* specimens exceeds 1.70 mm.

The first Australian records of *P. obtusa* are from the Torres Strait Islands: Boigu (09/142), Darnley (09/143), Moa (= Banks, 10/142), and Prince of Wales (10/142) (all 1974, H. Heatwole and E. Cameron; ANIC).

Recent West Irian and Papua New Guinea records are from Nabire, S of Geelvink Bay (03/135); Lumi, Torricelli Mountains (03/142); Madang, Amele (05/145); near Lae (06/147); and Obo, Fly River (07/141) (ANIC, BPBM, QMBA).

***Polyrhachis pallescens* Mayr, 1876 stat.nov.**

*Polyrhachis guerini* var. *pallescens* Mayr, 1876:74. Type locality: Qld, Rockhampton (23/150) (type presumed lost).

*Polyrhachis aurea* var. *pallescens* Mayr; Emery, 1897:584.

*Polyrhachis aurea* var. *depilis* Emery, 1897:589 (footnote). Type locality: Queensland (syntype examined, MHNG). syn.nov.

The unique holotype of *P. guerini pallescens* cannot be located in the Mayr collection (NHMW) and must be presumed to have been lost.

Syntypes of *P. aurea* (see above under *P. obtusa*) and *P. aurea depilis*, have been compared and matched against the ANIC nomenclatural paradigms of *P. guerini* (established above), and other material. We conclude that *P. aurea*, *P. guerini* and *P. depilis* are almost certainly separate species.

The mesosomal dorsum of *P. aurea* is covered with dense, golden pubescence and abundant,

long, somewhat undulating hairs. The pubescence of the gaster is very dense and golden, often with a distinct reddish tint mid-dorsally. The mesosomal dorsum of *P. depilis* has relatively sparse, whitish appressed pubescence, with fewer scattered hairs than in *aurea* (these are lacking in some of the specimens examined, apparently due to wear in life). The relatively long, appressed pubescence on the gaster is silvery-white, with at most only a very slight yellowish tint.

The original descriptions of *depilis* and *pallescens* show these taxa to be closely similar, and we conclude with reasonable confidence that they are conspecific. *P. pallescens* is evidently not common. It is known from the types, collected in central coastal Qld, and from a single additional series taken further south, from wallum community (a coastal heathland formation with dominant *Banksia aemula*, which extends from the Tropic of Capricorn south to northern NSW) at Lake Cootharaba (26/153) (near Boreon Point, SEQ, 13.xi.1976, RJK acc. 76.86).

#### *Polyrhachis phryne* Forel, 1907

*Polyrhachis phryne* Forel, 1907:41. Type locality: NSW, Mt Victoria (33/150).

*Polyrhachis sidnica* var. *perthensis* Crawley, 1922:36. Type locality: WA, Perth (31/115). syn. nov.

Taylor (1989) discussed affinities between the eastern Australian *P. phryne* (= *P. sempronina* Forel) and the southwestern *P. sidnica perthensis*, and raised *perthensis* to species rank. Subsequent examination of ANIC material from bulk spirit storage, and consideration of previously unstudied QMBA, Western Australian Museum and South Australian Museum specimens, along with the ecological voucher material of Dr P.J.M. Greenslade (CSIRO Division of Soils and ANIC), shows that these taxa should now be considered conspecific.

*P. phryne* is one of the most widespread of all southern Australian ants. It is known from c. 100 km N of Geraldton (28/114), Western Australia, southeastwards to the Great Australian Bight, across the southern part of the continent to southeastern South Australia and Victoria, thence northwards along the Great Dividing range and its eastern flanks to the Mackay district (21/148, 149), NQ. An apparently outlying population is present further north at Forty Mile Scrub (18/144), where the species has been taken in deciduous monsoon rainforest. *P. phryne* is

unrepresented in available collections from Tasmania, though its presence there seems likely.

*P. phryne* is generally collected from nests in the soil under stones, or taken abroad at night, usually in dry sclerophyll forests or woodlands, including mallee and subalpine woodland. It is commonly encountered foraging nocturnally on tree trunks in tall mallee near Poochera (32/134), SA, at well studied sites where *Nothomyrmecia macrops* Clark is present; it has only rarely been seen abroad there during daytime; nests are excavated in very fine calcareous soil, often without covering stones.

*P. phryne* is not a particularly variable species when compared to some others in 'Campomyrma'. Detailed examination of scores of mounted specimens from all parts of the known range has not revealed characters implying the presence of more than a single species, and there is no clear evidence of consistent geographical variation.

Relevant specimens have been examined from at or near the following localities:

QUEENSLAND: Forty Mile Scrub (18/144); Britton Range, Eungella Nat Pk, Finch Hatton Gorge (21/148); Blackdown Tableland (23/149); Cammo Caves (23/150); Rundle Range (23/151); Biloela (24/150); Kroombit Tops (24/151); Bunya Mountains (26/151); D'Aguiar Range, Mt Coot-tha (27/152); Cedar Creek Nat Pk, North Tamborine, Tamborine Mountain, Thunderbird Park (27/153); Goondiwindi (28/150); Fletcher (28/151); Mt Devlin (28/152); Binna Burra Lodge, Lamington Nat Pk (28/153). NEW SOUTH WALES: Lismore, Mt Nullum (28/153); Armidale, Ben Lomond Hill, Moonbi Range (30/151); Wauchope (31/152); Bulga, Fassifern, Heaton State Forest (32/151); Bulahdelah (32/152); Hillston (33/145); Grenfell (33/148); Blaxland, Kanangra Creek, Mount Victoria (33/150); Bucketty, Lane Cove, Swansea (33/151); Griffith (34/142); Euston (34/143); Tabbita (34/145); Boorowa, Cootamundra, Yass (34/148); Gunning, Wombeyan Caves (34/149); Mt Flora (34/150); Como (34/151); Finley (35/145); Tumui (35/148); Bungendore, Jerrabomberra Hill, Queanbeyan (35/149); Rosedale Beach (35/150); Khancoban (36/148); Tathra (36/149). AUSTRALIAN CAPITAL TERRITORY: Cotter Dam, Gibraltar Falls, Ororal Crossing, Uriarra Forest (35/148); Black Mountain, Mt Ainslie, Mt Majura, Mt Pleasant, Stirling Park, Tharwa, Yarralumla (35/149). VICTORIA: Linga (35/141); Nyah (35/143); Kiata (36/141); Heathcote (36/144); Qvons Valley (36/146); Chewton, Elphinstone (37/144). SOUTH AUSTRALIA: Nullarbor (31/130); 100 mi W of Penong (31/132); Wilpena Pound (31/138); Candada, Poochera, Streaky Bay

(32/134); Alligator Creek (32/138); Koonamore (32/139); Flinders Island (33/134); Arno Bay, Curtin Hill, Kimba (33/136); Blyth, Jamestown, Leighion, Sevenhill (33/138); Worlds End (33/139); Boston Bay, Port Lincoln (34/135); Warooka (34/137); Port Parham (34/138); Cambrai, Morgan (34/139); Cape Borda, Sandy Creek Bay, West Bay (35/136); D'Estrees Bay, Marion Bay (35/137); Belair (35/138); Murray Bridge (35/139). WESTERN AUSTRALIA: Billabong Roadhouse (26/114); Mullewa (28/115); Dongara (29/114); 160km S of Eneabba (30/115); Bungalbin Hill (30/119); Karonie (30/122); Perth (31/115); Coomalling (31/116); Merredin (31/118); Madura (31/127); Eucla (31/128); Armadale (32/116); Narrogin (32/117); 120km W of Balladonia (32/122); Booyana Rock (32/123); Cocklebidy (32/126); Ongerup, Pingrup (33/118); Newdegate (33/119); Esperance, Telegraph Hill (33/121); Goora Rock, Junana Rock, Mt Ragged, Thomas River (33/123); Mt Barker (34/117); Mt Trio (34/118); Salisbury Island (34/123).

***Polyrhachis pilosa* Donisthorpe, 1938 stat.nov.**

*Polyrhachis rastellata*  $\tau$ . *levior* var. *pilosa* Forel, 1902:527, workers from author's study series examined, MHNG, NHRS, ANIC (an inadmissible infrasubspecific name).

*Polyrhachis rastellata* var. *pilosa* Donisthorpe, 1938:256

The epithet *pilosa* was introduced by Forel (1902) as the fourth name in a quadrinomen. It was later excluded, as an infrasubspecific name (Taylor, 1986), from the catalogues of Taylor and Brown (1985) and Taylor (1987). These actions overlooked Donisthorpe's 1938 nomenclatural act, in which '*pilosa*' was used in a trinomial context for a subspecies, with clear reference to the earlier Forel name. As a result, authorship of the available species-group name *pilosa* in *Polyrhachis* must be formally attributed to Donisthorpe, under the *International Code of Zoological Nomenclature*, and the year of publication for purposes of priority is 1938. We take existing specimens from Forel's 1902-series to be the types of *P. rastellata pilosa* Donisthorpe, 1938.

The subgenus *Cyrtomyrma*, to which this taxon is assigned, has a number of Australian and New Guinean species, and the differences separating them can be subtle. Nonetheless, we recognise *P. pilosa* as a good species, in consideration of its very distinctive habitus. It uniquely possesses the following combination of

characters: pronotal humeri evenly rounded in dorsal view, lacking projections; propodeum without spines or other armament; and (most distinctively) entire dorsal surfaces of mesosoma and gaster with numerous long, erect hairs. The only other known (apparently undescribed) Australian species with long gastral hairs occurs in coastal areas centred on Cairns (16/145), NQ, but it has distinct, relatively long propodeal spines.

We have seen *P. pilosa* in Qld from Mt Ossa, NW of Mackay (20/148); Rundle Range, nr Gladstone (23/150); several sites near Bundaberg (24/152); Seary Scrub, Cooloola (25/153); Blackall Range (26/152); Peregrin Beach (26/153); and in NSW from near Lismore (28/153) and Taree (31/152). It has been collected most frequently towards the southern limits of this range. It is a relatively common ant in parks and suburban gardens in Brisbane (27/153). The types are putatively from Wolfongbar (28/153) and Richmond River (29/153), NSW (Forel, 1902), and this accords with the known distribution. However, two syntypes (ANIC, donated by MHNG) on a single pin labelled 'COTYPUS' carry a Forel autograph label reading '*levior* var. *pilosa*, Mackay, Turner, no 7'.

***Polyrhachis reclinata* Emery, 1887 stat.nov.**

*Polyrhachis sexspinosa* var. *reclinata* Emery, 1887:236. Type locality: New Guinea, Fly River (07/141) (3 syntypes examined, MCSN).

*Polyrhachis sexspinosa* (Latreille, 1802); Bolton, 1975:12 (in part).

*P. sexspinosa reclinata* syntypes have been compared with specimens identified by Bolton (1975) as *P. sexspinosa*, and with the ANIC nomenclatural paradigm of *sexspinosa* (see below). We consider *reclinata* to represent a species separate from *sexspinosa*. The head in *sexspinosa* is strongly tapered immediately behind the eyes, and the somewhat flange-like occipital margin forms prominent, well developed lateral lobes, which are usually clearly visible in full face view. In addition, the front of the head behind the eyes is coarsely rugose, with rather dilute, mostly white or silvery pubescence. In the *P. reclinata* types the head is generally shorter behind the eyes and less strongly tapered, and the lateral occipital lobes are relatively weakly developed and barely visible in full face view; the sculpturing on the back of the frons is a very

faint, somewhat polished, fine puncturation, which is usually largely masked by rich, brassy, appressed pubescence. The propodeal spines in *sexspinosa* are generally vertical relative to the main axis of the body, or even inclined forwards when viewed from the side. In *reclinata* they are posteriorly inclined, more curved in side view, and somewhat more divergent in dorsal view.

*P. sexspinosa* is relatively common and widespread on the mainland of New Guinea (Grid cells 03/135, 03/142, 05/145, 07/146, 08/147), but *P. reclinata* is known only from the savannas of the Port Moresby area, and from the Fly River delta in the south of the island, in areas generally opposite the tip of Cape York Peninsula (Grid cells 08/143, 09/143, 09/147). In Australia both species are known only from northern Cape York Peninsula, where *sexspinosa* ranges from Lockerbie Scrub south to Rocky River, ENE of Coen (Grid cells 10/142, 12/143, 13/143), and *reclinata* has been taken only at Iron Range (12/143) (RJK accs 81.185, 209, 210), where it nests in the hollow internodes of the bamboo *Bambusa forbesii*. Bamboo-internode nesting is common to most Australian species of the *sexspinosa*-group. The exceptions are *P. sexspinosa* itself, which builds camouflaged pocket nests of silk and bark fragments attached to the trunks of rainforest trees, and *P. glabrinota*, which uses silk to build nests by joining the leaves of various rainforest trees and shrubs. There are, incidentally, 5 species of the *sexspinosa*-group present on N Cape York Peninsula (*P. reclinata*, *P. sexspinosa*, *P. glabrinota* and 2 species yet to be described).

***Polyrhachis schoopae* Forel, 1902 stat.nov.**

*Polyrhachis appendiculata* r. *schoopae* Forel, 1902:520. Type locality: Qld, Mackay (21/149) (8 syntypes examined, MHNG, ANIC).

The *P. appendiculata* and *P. appendiculata schoopae* syntypes, and specimens considered conspecific with each, are consistently separable. We consider them to represent separate species. *P. appendiculata* is generally smaller than *P. schoopae*, with the relatively fine sculpturing of the promesonotal dorsum partly to largely obscured by silvery pubescence. The pronotal dorsum in profile is more strongly convex than in *schoopae*, and the mesonotal and propodeal dorsa almost straight. *P. schoopae* is relatively large, with the promesonotal dorsum mostly longitudinally striate and shining, with

appressed pubescence virtually lacking. The entire mesosomal dorsum in profile forms a single, strongly convex, almost semicircular arc.

The known range of *P. schoopae* is from Cape Tribulation, Qld, south to Mackay (Grid cells 16/145, 20/148, 20/149, 21/148, 21/149). *P. appendiculata* is known only from the Torres Strait islands (Yam I., Stephens I., Murray I.) (Grid cells 09/142, 09/143, 09/144), except for a single record from mid Cape York Peninsula (Jane Table Hill, Princess Charlotte Bay, 28 June 1980, RJK acc. 80.47) (Grid cell 14/144).

***Polyrhachis semiobscura* Donisthorpe, 1944**

*Polyrhachis (Hagiomyrma) semiobscura* Donisthorpe, 1944:65. Type locality: New Ireland, Kavieng (02/150) (holotype examined, BMNH).

*P. semiobscura* has been previously reported only from mainland PNG, and adjacent islands. It was recently collected for the first time in Australia, on Cape York Peninsula, Qld, at Bamaga (10/142) (RJK acc. 87.76) and Iron Range (12/143) (RJK accs 81.176, 179, 203). A colony at Iron Range occupied two adjacent woody galls attached to the thin branch of a low shrub in open forest. Melanesian records are from at or near the following localities: Bubia, nr Lac (06/146); Bulolo (07/146); and nr Sogeri (09/147). This is an open forest and savannah-inhabiting species.

***Polyrhachis sexspinosa* (Latreille, 1802)**

*Formica sexspinosa* Latreille, 1802:126, pl.4, fig.21.

Type locality: East Indies (type presumed lost).

*Polyrhachis (Myrmhopla) barnardi* Clark, 1928:39, pl.1, figs 37,38. Type locality: Qld, Cape York (10/142) (syntypes examined, MVMA, ANIC, MCZC). syn.nov.

Five nominal specimens (all labelled 'Type', one on a red tag, the others on blue tags) of *P. barnardi* have been examined, and the series is considered to include 2 distinct species. Three specimens match Clark's original description and illustrations, and these we take authentically to represent *P. barnardi*. A lectotype (the specimen bearing a red tag, MVMA) has been selected, and the other 2 specimens (MVMA) are designated paralectotypes. Further comparison of these specimens with others identified as *P. sexspinosa* by Bolton (1975), shows *sexspinosa* and *barnardi* (as restricted here) to be con-

specific. The 2 remaining original *barnardi* syntypes (ANIC, MCZC, the last examined by Bolton, 1975) are to be included in the type series of a new species for description by RJK. *P. sexspinosa* was originally described from a queen collected in the 'East Indies'. Like Bolton (1975) we have been unable to locate the type. In lieu we recognise a specimen in the ANIC from a long series collected at Pes Mission nr Aitape (03/142), West Sepik Province, PNG (RJK acc. 84.207) as the nomenclatural paradigm of *P. sexspinosa*. Designation of a neotype would not be appropriate here. Other details are given above under *P. reclinata*.

***Polyrhachis vermiculosa* Mayr, 1876 stat.nov.**

*Polyrhachis guerini* var. *vermiculosa* Mayr, 1876:74.

Original localities: Qld, Rockhampton (23/150) and Peak Downs (22/148); NSW, Sydney (as Sidney) (33/151), (3 syntype workers, 1 alate queen examined, NHMW, MHNG).

*Polyrhachis aurea* var. *vermiculosa* Mayr; Emery, 1897:584.

The compared syntypes of *P. guerini vermiculosa* and *P. aurea* (specimen details given under *P. pallescens*) are similar but, following examination of other relevant specimens, we consider them to represent separate species. *P. aurea* has the mesosoma strongly narrowed posteriorly, with the dorsum of the propodeum distinctly indented across the bases of the propodeal spines; the sculpturing of its pronotal dorsum consists of fine, more or less generally longitudinal, fragmented rugulation. *P. vermiculosa* is more stoutly built, with the propodeal dorsum at the base of the spines relatively wide, and the pronotal dorsum irregularly and rather vermiculosely rugose. The antennal scapes are relatively long in *aurea*, with Scape Index (see above under *P. obtusa*) >125, versus <115 in *vermiculosa*.

We have seen *P. vermiculosa* specimens from many localities, ranging from Lakefield on Cape York Peninsula, Qld, to just south of Brisbane (Grid cells 14/144, 20/148, 21/148, 22/149, 23/150, 26/153, 27/152, 27/153, 28/152). This species inhabits open forest and woodland, and nests mostly in the soil between grass roots, or under suitable covering objects, such as stones or logs.

***Polyrhachis yarrabahensis* Forel, 1915  
stat.nov.**

*Polyrhachis (Myrmatopa) lombokensis* var. *yarrabahensis* Forel, 1915:115. Type locality: Qld, Malanda (17/145) (for the queen), Yarrabah (16/145) (for the worker) (syntype workers examined, ANIC).

Worker syntypes of *P. lombokensis yarrabahensis* have been compared to a syntype of *P. lombokensis* (Emery, 1898: 239; worker (MCSN); Indonesia, Lombok). With some hesitation we consider them to represent separate species. We are hesitant to synonymize the names because of the great distance separating the known ranges of these taxa and because no material is known from areas in between. One syntype was unfortunately the only specimen of *P. lombokensis* available to us, and we have been unable to match it with any of the numerous Indonesian and Melanesian '*Myrmatopa*' specimens we have seen. The characters differentiating these taxa are relatively slight, but consistent in the material available.

The eyes of *P. yarrabahensis* are rather strongly convex, extending prominently beyond the outline of the head in frontal view. In *P. lombokensis* the eyes are less strongly convex, and exceed the outline of the head less strongly. The humeral margins of the pronotal dorsum in *yarrabahensis* are slightly angled in dorsal view, and the propodeal declivity descends from the dorsum as a relatively gentle slope (the accurately goniometer-measured angle between the basal and declivitous propodeal faces in side view ranges from 37 to 45° in 10 *yarrabahensis* specimens examined). The humeri in *lombokensis* are broadly and smoothly rounded in dorsal view, and the propodeal declivity descends more abruptly in the available syntype, at an angle of 50°.

*P. yarrabahensis* is an arboreal species which uses silk to build complex, often polydomous nests by joining together the leaves of various lowland rainforest trees, shrubs and vines. Known records (NQ) are from Massy Spur Creek, near Silver Plains (13/143) and from Kamerunga and Yarrabah, in the Cairns area (16/145). We would expect that this species is limited to altitudes below about 350 m in the coastal strip of the Base-of-Peninsula area (as are many ant species of Papuan affinity, including the prominent green weaver ant *Oecophylla*

*smaragdina* (Fabricius)), and that the alate type-queen from Malanda had probably flown to elevations beyond the usual nesting range.

*Polyrhachis yorkana* Forel, 1915 stat.nov.

*Polyrhachis* (*Cyrtomyrma*) *rastellata* var. *yorkana* Forel, 1915:110. Type locality: Old, Cape York Peninsula (syntypes examined, ANIC).

*P. yorkana* is the oldest available name based on Australian type-material that is applicable to a widespread species (or complex of species) represented throughout the range of the subgenus 'Cyrtomyrma' in eastern Australia (i.e. from Cape York south to near 30°S in coastal eastern NSW). These ants are relatively nondescript, lacking any of the features discriminating more easily characterised *Cyrtomyrma* species (such as propodeal spines, abundant gastral or mesosomal/gastral pilosity, dense body pubescence), except for a tuft of fewer than 10 long hairs on the summit of the strongly arched mesosoma. Similar ants are present in SE Asia and New Guinea, so that senior names based on foreign specimens could be applicable to the Australian species.

All available names of the species-group have identical status in nomenclature regardless of their rank, and the assigning of species rank to the names of unresolved taxa of the species-group seems the best course to follow. For these reasons we here attribute full specific rank to *P. yorkana*. We suspect that it will survive as a good species following revision of *Polyrhachis*.

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